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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,533	12/20/2001	Gaetano Santoruvo	01-RB-075 (850063.587)	5875

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EXAMINER

FASTOVSKY, LEONID M

ART UNIT PAPER NUMBER

3742

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,533

Applicant(s)

SANTORUVO ET AL.

Examiner

Leonid M Fastovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,16,24-26,28-30,34,35 and 42-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,16,24-26,28-30,34,35 and 42-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. claim identifiers are wrong: claims 21-22, 23 and 27 are withdrawn from the consideration because they depend on non-elected species; claim 9 is cancelled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cozad in view of McSparran (4,996,487).

Cozad teaches an integrated heater 50, comprising a semiconductor material 52, at least one transistor 92 formed on the semiconductor material 52, a dielectric layer 58, a fluid retaining chamber 61 (Fig. 6) integral with the semiconductor material 52, showing the chamber where fluid 63 to be heated is positioned within the chamber. Cozad teaches also a wall portion of the semiconductor body 58 with a wall portion adjacent to and in sealing arrangement with the semiconductor wall.

However, Cozad does not teach a transistor formed in the semiconductor body and operable to generate heat. McSparran teaches an integral heater having a transistor 32a with a heater 20a formed in the semiconductor body 14 for heating fluid 12. It would have been obvious to one having ordinary skill in the art to modify Cozad's invention to

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include a transistor and heater in the substrate of Cozad'd heater in order to heat fluid in the fluid chamber as taught by McSparran (Col. 3, lines 10-15, 55-65).

4. Claims 24-26, 28-30, 34-35, 42- 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cozad in view of McSparran and further in view of Williams (5,243,212) and Jang et al (6,624,065).

Cozad in view of McSparran teaches substantially the claimed invention, but does not teach a source region, a drain region, a channel region and a gate electrode made of metal. Williams teaches a semiconductor device comprising a semiconductor region, a source region, a drain region, a channel region and a gate electrode made of polycrystalline silicon (col. 6, line 51), on a dielectric layer 208 disposed in the channel region (col. 8, lines 24-67), and Jang discloses a metal gate electrode 20. It would have been obvious to one having ordinary skill in the art to modify the invention of Cozad in view of McSparran to include a metal gate electrode as taught by Jang in order to prevent an electric short circuit (col. 1, lines 8-13) and a transistor having a source region, a drain region, a dielectric layer, a channel region within the semiconductor material disposed on the dielectric layer to control the conductivity of the region as taught by Williams (Abstract).

As for claims 46 and 48, Sparran teaches an electrically insulated layer 24. It would be obvious to modify Cozad's invention to include an insulating layer as taught by McSparran in order to protect the electrode and heater form ambient (col. 3, lines 10-20).

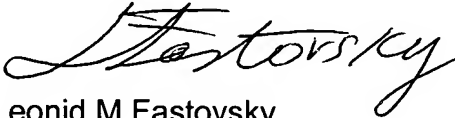
Response to Arguments

5. Applicant's arguments with respect to claims 1,4,16,24-26,28-30,34,35 and 42-49 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 703-306-5482. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

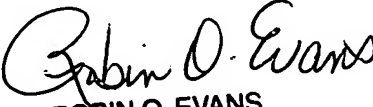
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Leonid M Fastovsky
Examiner
Art Unit 3742

lmf

11/15/04


ROBIN O. EVANS
PRIMARY EXAMINER
11/15/04